"IN PURSUIT OF NATURAL KNOWLEDGE"

Natural History Exploration in the 18th and 19th Centuries

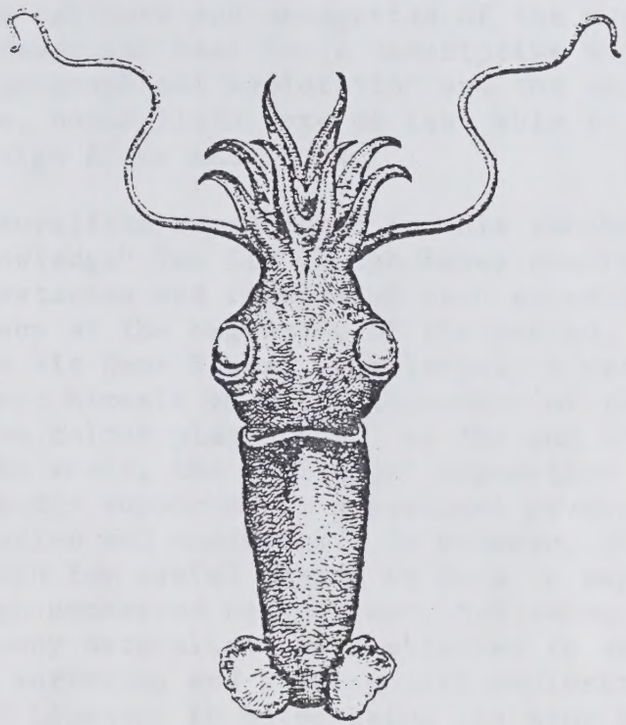

Fig. 108.—*Bathyteuthis abyssicola*, n. gen. et sp.; natural size.

January - February, 1979

THOMAS FISHER RARE BOOK LIBRARY

THE UNIVERSITY OF TORONTO LIBRARY

"IN PURSUIT OF NATURAL KNOWLEDGE"

Natural History Exploration in the Eighteenth and Nineteenth Centuries

An Exhibition at the
Thomas Fisher Rare Book Library
University of Toronto
January - February 1979

Although mythical animals and plants had largely disappeared from botanical and zoological works by the beginning of the eighteenth century, the natural history of distant lands was still largely unknown to European science. Ships had returned to Europe for many years with specimens of exotic species for the cabinets and menageries of the curious but such collections were an inadequate base for a descriptive science. However, with the increase in geographical exploration and the establishment of colonies by the European powers, naturalists were at last able to acquire first-hand knowledge of foreign flora and fauna.

While all the naturalists represented in this exhibition set out "in pursuit of natural knowledge" (as Sir Joseph Banks described his travels with Cook), the circumstances and results of each expedition varied greatly. The work of Mark Catesby at the beginning of the period, although funded by subscribers such as Sir Hans Sloane, was largely a private venture. Catesby hoped to support himself by the publication of the results of his travels in an expensive colour plate book. At the end of the period and at the other end of the scale, the Challenger Expedition to explore the world's oceans was grandly supported by a national government and was accordingly vast in organization and execution. In between, there were solitary naturalists whose search for useful plants or data to support scientific theory led them through uncharted regions; and, following the example of Captain Cook's first voyage, many naturalists were attached to expeditions whose primary purposes were surveying and geographical exploration. The role of the Swedish naturalist Linnaeus in encouraging his many students to add to the knowledge of the flora and fauna of inadequately described regions, was of crucial importance.

The naturalist who returned to Europe, having suffered the hardships of exploration and laden with specimens, had a further task ahead of him - the publishing of his results. Joseph Banks, who was responsible for the great success of Cook's first voyage in the fields of descriptive botany and zoology, seems to have been especially lax in publishing the results of that voyage, reasoning perhaps, that those who wished to see the specimens could travel to London to do so. But his attitude was not typical. In general, the publishing of results was a duty faithfully carried out, even, as in the case of the Challenger Expedition Reports or Humboldt's South American researches, at great expense to the naturalists themselves. The botanical and zoological collections acquired on geographical explorations,

Digitized by the Internet Archive
in 2026 with funding from
University of Toronto

https://archive.org/details/inpursuitofnatur00crel

such as those in search of the North West passage, were often described in appendices to the narrative of the voyage. The inclusion of plates, which added greatly to the value of these descriptions, was generally made possible by government financial support. The publication of a work with expensive plates was risky when undertaken by an individual. Catesby's Natural History made only a meagre living for its author; Philip Henry Gosse lost money on his Illustrations of the Birds of Jamaica; and Humboldt was financially ruined by his publishing ventures.

It is the published results of these naturalist-explorers which are highlighted in this exhibition. Their accumulated first hand observations formed a library of botanical and zoological knowledge which was available to all. Although the examination of a plate of an animal or plant in a book cannot adequately convey the sense of excitement and hardship, romance and even death which was so often a part of these expeditions, the illustrations are themselves of great interest. Previously unknown or imperfectly described species were rendered, often with great artistic skill, for the first time to the view of European naturalists.

The brief notes about each item displayed are intended to give information regarding the time and place, purpose and results of each expedition. The items are arranged approximately in chronological order based on the initial date of the expedition.

1. Catesby, Mark, 1679?-1749. The Natural History of Carolina, Florida and the Bahama Islands. London, The Author, and sold by W. Innys [etc.] 1731-43.

   Catesby trained and practised as a naturalist in England, but his most important work was the result of his two sojourns (1710-19, 1722-26) in the New World. He spoke for all the explorer-naturalists when he wrote: "not being content with contemplating the products of our own country, I soon imbibed a passionate desire of viewing as well the animal and vegetable productions in their native countries." On his final return to England, after first having received instruction in the art of etching, Catesby began the preparation of the magnificent plates for his Natural History, all of which, with the exception of three by the superb botanical artist, G.D. Ehret, were drawn and etched by himself. The result was not only a faithful record of the flora and fauna of the regions visited, but also an outstanding colour-plate book.

2. Charlevoix, Pierre François Xavier de, 1682-1761. Histoire et Description Generale de la Nouvelle France ... Paris, Rolin fils, 1744.

Charlevoix spent the years 1705 to 1709 teaching grammar as a Jesuit novice at Quebec and the years 1720 to 1723 searching for the western sea, on a commission from the French government. The work displayed is considered to be the first general history of French settlement in North America. Although not trained as a naturalist, Charlevoix considered knowledge of the flora of settled areas to be important and included descriptions of some one hundred plants in his work.

3. Linnaeus, Carl, 1707-1778. Flora Lapponica Exhibens Plantas per Crescentes Lapponicam. Amstelaedamum, Apud S. Schouten, 1737.

The pioneering work of the great Swedish naturalist, Linnaeus, in the classification of plant and animal species attracted many students to the University of Upsala. Many of these students, with the encouragement of Linnaeus, were later to make lengthy voyages of natural history exploration. Linnaeus himself, made such a trip to Lapland in 1732, sponsored by the Academy of Sciences of Upsala. Linnaeus covered over 4,000 miles under conditions of considerable difficulty - alone, on foot or horseback and through an inhospitable terrain. The greeting extended to him by a Lapp woman could no doubt have been extended to many naturalists on their distant travels: "O thou poor man, what hard destiny can have brought thee hither, to a place never visited by anyone before ... Thou miserable creature, how didst thou come, and whither wilst thou go?"

The scientific results of the trip are reported in the Flora Lapponica.

4. Hunt Institute for Botanical Documentation. A Linnaean Keepsake. Pittsburgh, Pa., 1973.

The map shows the routes taken by the students of Linnaeus in their voyages of natural history exploration. Those represented in this exhibition include: Pehr Kalm, Daniel Solander, Petter Forskål, Fredrik Hasselquist and Anders Sparrman.

5. Kalm, Pehr, 1716-1779. Travels into North America; Containing its Natural History, and a Circumstantial Account of its Plantations and Agriculture in General ... London, T. Lowndes, 1772.

Linnaeus suggested to his student, Kalm, that a voyage to North America would be useful in adding to the inadequate knowledge of

the flora of that continent. But the voyage, undertaken between 1748 and 1751 and supported chiefly by the Royal Swedish Academy of Sciences, also had a more practical purpose. It seemed probable that "the greatest part of the North American plants would bear very well the Swedish winters, and what was more important... promised to be very useful in husbandry and physic".

The drawings which accompany the volume displayed were not in the original Swedish edition but were copied from other North American specimens.

6. Hasselquist, Fredrik, 1722-1752. Voyages and Travels in the Levant, in the Years 1749, 50, 51, 52, Containing Observations in Natural History ... London, L. Davis and C. Reymers, 1766.

Linnaeus was, again, the inspiration for the journey: "In one of my botanical lectures ... I enumerated the countries of which we knew the natural history and those of which we are ignorant. Amongst the latter was Palestine." Hasselquist accumulated large collections in Asia Minor, Egypt, Cyprus and Palestine. He succumbed to fever near Smyrna in 1752, dying, as Linnaeus said, "in his attempt to promote natural history". Upon his death, his collections were seized by his creditors and only returned to Sweden by the intervention of Queen Louisa Ulrica.

7. Forskål, Petter, 1732?-1763. Flora Aegyptico-arabica. Hauniae, Ex officina Mölleri, 1775.

Another student of Linnaeus, Forskål undertook a voyage to the Levant in 1761, under the sponsorship of King Fredrick V of Denmark. Like his unfortunate predecessor, Hasselquist, Forskål too died of fever while engaged in his exploration. The map shows the route of his travels.

8. Sparrman, Anders, 1748-1820. A Voyage to the Cape of Good Hope, Towards the Antarctic Polar Circle but Chiefly Into the Country of the Hottentots and Caffres, From the Year 1772 to 1776. Translated from the Swedish original. London, G.G.J. and J. Robinson, 1785.

Naturalists were often regarded with suspicion. Sparrman could only undertake his natural history researches in South Africa after having arranged to instruct the children of the European residents in French, geography and mathematics, in order that he might not be considered a foreign spy. Sparrman joined Captain Cook on his second voyage of exploration when H.M.S. Resolution called at the Cape. Only one chapter of the work displayed is devoted to a description of the Antarctic voyage, the rest deal with South Africa.

9. Hawkesworth, John, 1715?-1773. An Account of the Voyages Undertaken by the Order of His Present Majesty for Making Discoveries in the Southern Hemisphere, and Successively Performed by Commodore Byron, Captain Wallis, Captain Carteret, and Captain Cook, in the Dolphin, the Swallow, and the Endeavour. London, W. Strahan, and T. Cadell, 1773.

The importance of Captain Cook's first voyage aboard H.M.S. Endeavour between 1768 and 1771 for the future of natural history exploration can hardly be exaggerated. It was the first government funded expedition which included a professional naturalist among its personnel. The expedition had three main objectives: to observe the transit of Venus, to discover if there were any truth in the reports of a great continent in the far southern latitudes, and, as it was stated in the secret orders issued to Cook by the Admiralty, "to observe the nature of the soil, and the products thereof; the beasts and fowls that inhabit or frequent it, the fishes that are to be found in the rivers or upon the coast and in what plenty; and in case you find any mines, minerals, or valuable stones you are to bring home specimens of each; as also such specimens of the seeds of trees, fruits and grains as you may be able to collect ..."

Hawkesworth's account of Cook's first voyage forms volumes 2 and 3 of the work displayed. Hawkesworth took the liberty of writing in the voice of Cook, to whose papers he had access; he also made free use of the journals of Joseph Banks, the director of the scientific personnel. The map shows Botany Bay, so named by Cook because of the great number of specimens collected there by Banks and Daniel Solander, the official naturalist.

10. Banks, Sir Joseph, Bart., 1743-1820. A Journal of a Voyage Round the World, in His Majesty's Ship Endeavour, in the Years 1768, 1769, 1770, and 1771; Undertaken in Pursuit of Natural Knowledge ... London, T. Becket and P.A. de Hondt, 1771.

Banks played a unique and important role in British science for many years. By virtue of his wealth and position, he was able to arrange for the inclusion of a staff of naturalists and artists in the Endeavour expedition. After the success of the voyage from the point of view of descriptive botany and zoology, many British expeditions carried a naturalist on board. As Banks said in his journal: "I may flatter myself that being the first man of scientific education who undertook a voyage of discovery and the voyage of discovery, the first which turned out satisfactorily in this enlightened age, I was in some measure the first who gave that turn to such a voyage."

Banks' journal was not published in its entirety until 1963 by J.C. Beaglehole.

11. Murray-Oliver, Anthony Audrey St. Clair Murray, 1915- . Captain Cook's Artists in the Pacific, 1769-1779. [Christchurch] N.Z., Avon Fine Prints, 1969.

Banks' choice for the principal artist of the Endeavour expedition was the gifted Sydney Parkinson. During the early part of the voyage, Parkinson was able to make water-colour drawings of the specimens collected as they were brought on board, but by the time the ship reached the coast of Australia, he was completely overwhelmed. Parkinson died of a shipboard disease on the return voyage, as did most of the scientific personnel. He managed to complete some 1,000 drawings of plants and 300 of animals before his untimely death. Owing to a variety of circumstances, the illustrations were never published; they are preserved in the British Museum (Natural History).

This volume reproduces some of the drawings made by Cook's artists, including the botanical drawings of Parkinson.

12. Humboldt, Alexander, Freiherr von, 1769-1859. Personal Narrative of Travels to the Equinoctial Regions of the New Continent, During the Years 1799-1804. London, Longman, Hurst, Rees, Orme, and Brown [etc.] 1814-29.

In the forward to his narrative, the great naturalist Humboldt, described the purposes of his research in South America: "I wished to make known the countries I had visited; and to collect such facts as are fitted to elucidate a science, of which we have possessed scarcely the outline, and which has been vaguely denominated natural history of the world, theory of the earth or physical geography. The last of these two objects seemed to me the most important. I was passionately devoted to botany and certain parts of zoology, and I flattered myself that our investigations might add some new species to those which have already been described." Humboldt regarded the "connection" of facts more important than the discovery of a new genus. He and his associate, Aimé Bonpland, did, however, collect between them over 60,000 plant specimens, including 6,300 previously unknown in Europe.

The Personal Narrative was first published in Paris between 1814 and 1819. Incomplete and of unequal quality, it nevertheless exerted a great influence on other naturalists. Darwin carried it with him on his travels and wrote from the Beagle: "I formerly admired Humboldt, now I almost adore him."

13. Humboldt, Alexander, Freiherr von, 1769-1859. Recueil d'Observations de Zoologie et d'Anatomie Comparée, Faites dans l'Ocean Atlantique, dans l'Intérieur du Nouveau Continent et dans la Mer du Sud Pendant les Années 1799, 1800, 1801, 1802, et 1803. Paris, Schoell, 1811.

The publication of Humboldt's South American researches was a monumental undertaking, carried out over a period of thirty years and filling thirty volumes. The cost of publication, largely borne by Humboldt himself, caused his financial ruin. This work brings together some observations on the zoology of South America made by Humboldt and his associate Bonpland.

14. Péron, François, 1775-1810. Voyage de Découvertes aux Terres Australes ... sur les Corvettes le Géographe, le Naturaliste et la Göelette le Casuarina Pendant les Années 1800, 1801, 1802, 1803 et 1804. Paris, Impr. Impériale, 1811-

Péron served as a zoologist on this surveying voyage in the coastal waters of Australia and Tasmania. He returned with some one hundred live animals never before seen in Europe - they found a home at Malmaison, the château of the Empress Josephine.

15. Michaux, François André, 1770-1855. The North American Sylva. Paris, Printed by C. d'Hautel, 1819.

Michaux' researches in North America were undertaken, like those of Kalm before him, for a practical purpose: "The researches of learned botanists for more than a century past have shown how highly the American continent is favoured in its vegetable kingdom. But their object seems to have been rather the progress of botanical knowledge and the embellishment of European gardens, than an acquaintance with the properties of the American plants and with the uses of forest trees. This, on the contrary was the end which I had particularly in view in my travels in the United States in 1807." During his travels Michaux sent some 5,000 trees and many seeds back to France. He died of fever while on a later botanizing expedition to Madagascar.

16. McIlraith, John. Life of Sir John Richardson. London, Longmans, Green, 1868.

Portrait of Richardson.

17. Franklin, Sir John, 1786-1847. Narrative of a Journey to the Shores of the Polar Sea in the Years 1819, 20, 21, and 22 ... With an Appendix on Various Subjects Relating to Science and Natural History. London, J. Murray, 1823.

Numerous journeys to the north coast of North America in search

of the North West Passage were accompanied by naturalists. Sir John Richardson, originally trained as a surgeon in Edinburgh, accompanied Franklin's first two expeditions and made an outstanding contribution to the natural history of the Arctic regions. It need hardly be said that the exploration of such regions was extremely hazardous and the collection of specimens fraught with difficulty. As Richardson wrote: "the want of the means of carriage, even at the most flattering periods of this disastrous journey, prevented us from attempting to preserve any bulky objects of natural history". During the return trip across the Barren Lands in 1821, the party suffered the rigours of an Arctic winter, famine, and the murder of one of the party's officers, and was compelled to abandon all the specimens collected that summer.

The appendix to Franklin's narrative includes notes on the fishes and plants by Richardson and notes on zoology by Joseph Sabin.

18. Parry, Sir William Edward, 1790-1855. Appendix to Captain Parry's Journal of a Second Voyage for the Discovery of a North-west Passage ... London, J. Murray, 1825.

No official naturalist was appointed to Parry's second expedition because of the smallness of the ship; nevertheless, as Parry said, "No opportunity has been omitted of procuring and preserving specimens in the several departments of natural history." On the return to England, the specimens were distributed to Richardson and Professors Jameson and Hooker for description.

19. Duperrey, Louis Isidore, 1786-1865. Voyage Autour du Monde, Exécuté par Ordre du Roi, sur la Corvette de Sa Majesté, la Coquille, Pendant les Années 1822, 1823, 1824, et 1825. Paris, A. Bertrand, 1826.

The chief object of Duperrey's voyage around the world was the preparation of charts and the mapping of currents. The expedition returned, however, with large collections of botanical and zoological specimens which were deposited in the Muséum d'Histoire Naturelle at Paris.

20. Beechey, Frederick William, 1796-1856. Narrative of a Voyage to the Pacific and Beering's Strait ... in the Years 1825, 26, 27, 28. London, H. Colburn and R. Bentley, 1831.

Beechey was ordered to proceed to Bering Strait by way of the Pacific in order to provide assistance to the polar expeditions

of Parry or Franklin, should they meet. The orders further stipulated: "As we have appointed Mr. Tradescant Lay as naturalist on the voyage, and some of your officers are connected with certain branches of natural history, it is expected that your visits to the numerous islands of the Pacific will afford the means of collecting rare and curious specimens in the several departments of this branch of science; you are to cause it to be understood that two specimens, at least, of each article are to be reserved for the public museums, after which the naturalist and officers will be at liberty to collect for themselves."

The bulk of the descriptions of the specimens were reserved for other volumes. The appendix to the Narrative contains notes by William Buckland on the fossil remains of elephants found at Eschscholtz Bay in Bering Strait.

21. Ross, Sir John, 1777-1856. Appendix to the Narrative of a Second Voyage in Search of a North-west Passage. London, A.W. Webster, 1835.

Ross's second voyage, funded by Sir Felix Booth, ended with the loss of his ship, the Victory, "fixed in immovable ice, till time should perform on her his work." The natural history notes in the Appendix were compiled by James Clark Ross, Sir John's nephew and second in command of the expedition. Many of the specimens collected were abandoned with the ship.

22. Richardson, Sir John, 1787-1865. Fauna Boreali-americana; or, The Zoology of the Northern Parts of British America. Containing Descriptions of the Objects of Natural History Collected on the Late Northern Land Exhibitions Under Command of Captain Sir John Franklin, R.N. By John Richardson, Surgeon and Naturalist to the Expeditions, Assisted by William Swainson, and the Rev. William Kirby. London, J. Murray, 1829-31.

Richardson's Fauna Boreali-americana brought together not only the results of Franklin's first two expeditions, on which Richardson was present, but also the results of several other trips. It was for years the definitive work on the fauna of the northern regions. Richardson prepared the first volume on the mammalia; the second volume was prepared by Kirby (on insects) and Swainson (on birds).

23. Hooker, Sir William Jackson, 1785-1865. Flora Boreali-americana; or, The Botany of the Northern Parts of British America; Compiled Principally From the Plants Collected by Dr. Richardson and Mr. Drummond on the Late Northern Expeditions, Under Command of Captain Sir John Franklin. London, Treuttel, Würtz, 1833-40.

Hooker's Flora Boreali-americana forms a companion volume to Richardson's Fauna and deals chiefly with the plants collected by the first two Franklin expeditions. The plates are by Hooker, who was in addition to being one of the greatest 19th century English botanists, a superb botanical artist. The cost of producing the plates for both the Flora and the Fauna was met by a grant from the British Government.

24. Darwin, Charles Robert, 1809-1882. Journal of Researches Into the Geology and Natural History of the Various Countries Visited by H.M.S. Beagle, Under the Command of Captain Fitzroy, R.N., From 1832 to 1836. London, H. Colburn, 1839.

Darwin's Journal of Researches, also known as the Voyage of the Beagle, describes what is undoubtedly the most scientifically important and best known voyage of a naturalist yet written. Darwin was invited to join the crew, as an unpaid naturalist, of the British Admiralty survey ship, H.M.S. Beagle on its surveying trip to the southern parts of America and subsequent circumnavigation of the globe. Darwin wrote at the end of his Journal, what, in light of his later work, could be called an understatement: "... it appears to me that nothing can be more improving to a young naturalist than a journey in distant countries."

25. Darwin, Charles Robert, 1809-1882. The Zoology of the Voyage of H.M.S. Beagle, Under the Command of Captain Fitzroy, R.N., During the Years 1832 to 1836 ... Edited and Superintended by Charles Darwin, Naturalist to the Expedition. London, Smith, Elder, 1839.

On his return, Darwin found himself with large collections of specimens in the various branches of natural history. The Lords Commissioners of Her Majesty's Treasury, convinced of the "great advantage that would be derived to the science of natural history" provided the funds necessary for the publication of the results. The specimens were, accordingly, given to various experts for description. Darwin's South American fossils were given to Richard Owen whose work forms Part 1 of The Zoology of the Voyage of the Beagle and was the beginning of his important paleontological work.

26. Ross, Sir James Clark, 1800-1862. A Voyage of Discovery and Research in the Southern and Antarctic Regions, During the Years 1839-43. London, J. Murray, 1847.

The voyage of H.M.S. Erebus and Terror was undertaken under the guidance of the Royal Society to advance the science of terrestrial magnetism by making observations in the high southern

latitudes. The Royal Society, in addition, drew up a list of zoological, botanical and geological desiderata and provided instructions for the collection and preservation of specimens.

27. Richardson, Sir John, 1787-1865. The Zoology of the Voyage of H.M.S. Erebus and Terror ... London, Janson, 1844-75.

The publication of the zoological results was undertaken jointly by John Richardson (who accompanied the expedition) and John Edward Gray. J.D. Hooker, the botanist to the expedition, described the botanical specimens in his Flora Antarctica. The Admiralty again provided funds for the illustration of these works.

28. Gosse, Philip Henry, 1810-1888. A Naturalist's Sojourn in Jamaica. London, Longman, Brown, Green, and Longmans, 1851.

Gosse complained that "natural history is far too much a science of dead things; a necrology. It is mainly conversant with dry skins furred or feathered, blackened, shrivelled and hay-stuffed; with objects ... impaled on pins, and arranged in rows in cork drawers; with uncouth forms, disgusting to the sight and smell, bleached and shrunken, suspended by threads and immersed in spirits". His sojourn in Jamaica, between October, 1844 and July, 1846, was devoted to the study of the natural history of the island and gave Gosse both the opportunity to observe the plants and animals in their natural habitat and the material for a lively memoir.

29. Gosse, Philip Henry, 1810-1888. Illustrations of the Birds of Jamaica. London, J. Van Voorst, 1849.

Gosse published his Birds of Jamaica in 1847. After receiving some complaints from reviewers about the lack of illustrations, Gosse undertook to publish in monthly parts and by subscription, hand coloured lithographs of the birds described. By a miscalculation, Gosse suffered a slight loss on every copy of the book sold, and, as Edmund Gosse wrote, "if the demand for the book in this condition had been great, he would have been in dreadful straits."

30. Macgillivray, John, 1822-1867. Narrative of the Voyage of H.M.S. Rattlesnake, Commanded by the Late Captain Owen Stanley ... During the Years 1846-1850. London, T. & W. Boone, 1852.

Macgillivray served as the official naturalist on this surveying voyage to the Torres Straits off the coast of Australia. Thomas Henry Huxley, although officially attached to the expedition as surgeon, did considerable work on planktonic life while on board, and, in the years following the voyage, produced a number of papers based on the specimens taken.

31. Bates, Henry Walter, 1825-1892. The Naturalist of the River Amazons. London, J. Murray, 1892.

Bates set out for the jungles of the Amazon Basin in 1848 on a joint expedition with A.R. Wallace, whose suggestion it was: "In the autumn of 1847, Mr. A.R. Wallace, who has since acquired wide fame in connection with the Darwinian theory of natural selection, proposed to me a joint expedition to the River Amazons, for the purpose of exploring the natural history of its banks; the plan being to make for ourselves a collection of objects, dispose of the duplicates in London to pay expenses, and gather facts, as Mr. Wallace expressed it in one of his letters, 'towards solving the problem of the origin of species.' " Bates calculated that in his eleven years of exploration, he collected some 14,000 species (mainly insects) some 8,000 of which were unknown to European science. Bates' record of his journey, one of the finest of the naturalist's narratives, was first published in 1863. He is reported to have said that he would rather spend another eleven years in the tropical jungles rather than write another book.

32. Wallace, Alfred Russell, 1823-1913. A Narrative of Travels on the Amazon and Rio Negro. London, Ward, Lock, 1889.

After some joint exploration of the Amazon River, Wallace and Bates separated in order to cover more territory. Wallace returned to England in 1852. The return sea-voyage was disastrous; the ship sank as the result of a fire on board. Wallace spent ten days in an open lifeboat before being rescued and, needless to say, lost the considerable collection of specimens that he was carrying with him. This unfortunate loss retarded Wallace's work on the question of the origin of species.

33. Wallace, Alfred Russell, 1823-1913. The Malay Archipelago; the Land of the Orang-utan, and the Bird of Paradise. A Narrative of Travel, With Studies of Man and Nature. London, Macmillan, 1869.

Wallace's narrow escape from death did not deter him from continuing his search for evidence on the species question. He spent the years from 1854 to 1862 travelling in the Malay Archipelago where he collected over 125,000 specimens, destined not

only for his own collections but also to supply museums and the amateur naturalists back home who eagerly sought exotic specimens.

34. Belcher, Sir Edward, 1799-1877. The Last of the Arctic Voyages; Being a Narrative of the Expedition in H.M.S. Assistance ... in Search of Sir John Franklin, During the Years 1852-53-54. With Notes on the Natural History by Sir John Richardson, Professor Owen, Thomas Bell, J.W. Salter and Lovell Reeve. London, L. Reeve, 1855.

Although the chief objective of this expedition was a further search for Franklin, Belcher saw to it that a small number of specimens of the Arctic flora and fauna were collected and returned to England for description by experts.

35. Nicholson, Henry Alleyne, 1844-1899. Report Upon the Palaeontology of of the Province of Ontario. Toronto, Printed by Hunter, Rose, 1874.

Nicholson, a Professor at University College, Toronto, was enabled by a grant from the Government of Ontario to spend the summers of 1873 and 1874 collecting fossils in Ontario. This report describes the fossils collected from the Devonian rocks of the Western part of Ontario in the summer of 1873.

36-39. Challenger Expedition. Report on the Scientific Results of the Voyage of H.M.S. Challenger During the Years 1873-76 Under the Command of Captain George S. Nares ... and the Late Captain Frank Tourle Thomson. Prepared Under the Superintendence of the Late Sir C. Wyville Thomson ... and Now of John Murray. [Edinburgh] Printed for H.M. Stationery Off., 1880-95.

In 1870, Wyville Thomson, Professor of Natural History at the University of Edinburgh, encouraged the Royal Society of London to seek support from the British Government for an expedition to explore the physical and biological conditions of the great ocean basins. The result was a government-funded scientific expedition on an unprecedented scale. H.M.S. Challenger, a wooden corvette of 2306 tons, was outfitted with chemical and zoological laboratories and carried a complete scientific team. In three and a half years of criss-crossing the oceans, she travelled some 69,000 miles and set up 362 observation stations. The scientific work carried out was on an equally large scale. The hitherto accepted belief that animal life could not exist below depths of 300 fathoms was shattered as the dredge brought up specimens from all levels of the ocean floor.

After the completion of the voyage, John Murray, the naturalist, and C. Wyville Thomson, the director of the scientific staff,

set up the Challenger Expedition Commission to prepare the reports. The first task was the distribution of the 600 cases of specimens to experts for description. The monumental report eventually appeared between 1880 and 1895 in fifty volumes. The funding for the final volumes was provided by Murray himself, who took over the editorship after the death of Thomson in 1882. Most of the fifty volumes are devoted to the zoological findings but the botanical, meteorological and magnetical findings are also reported. The narrative of the voyage appears in volume 1, parts 1 and 2.

Four volumes of the Report are displayed:

36. Vol. 1, pt. 1. Narrative. The plate shows H.M.S. Challenger in Christmas Harbour at Kerguelen Island.

37. Zoology, vol. 28. Plates. Report on the Radiolaria ... by Ernst Haeckl.

38. Zoology, vol. 30. Report on the Asteroidea ... by W.P. Sladen.

39. Summary, pt. 1. The map shows (in red) the track of H.M.S. Challenger.

40. Challenger Expedition. Portraits of the Contributors, Reproduced From the Photographs Presented by Them to John Murray, Naturalist on the "Challenger" and Editor of the "Challenger" Reports. London, Dulau, 1892.

In recognition of Murray's achievements as both naturalist and editor, the members of the expedition and the contributors of the reports presented him with an album of portraits. Displayed is the design for the presentation binding to Murray by Walter Crane.

41-43. Tyrrell, Joseph Burr, 1858-1957.

While working for the Geographical Survey of Canada in 1884, J.B. Tyrrell was directed to explore the area between the Bow and Saskatchewan Rivers in the foothills of the Rocky Mountains. Although the chief objectives of the expedition were geological and mineralogical, Tyrrell was also instructed to observe the flora and fauna of the region and to collect fossils. In the valley of the Red Deer River, Tyrrell made a remarkable discovery - the fossilized remains of extinct dinosaurs: "among these was a large and fairly perfect head of Laelaps (Dryptosaurus) incrassatus, a gigantic carnivore, which projected out

of the horizontal beds of cretaceous sandstone, with its rows of sharp spikelike teeth giving it a very fierce appearance." After a difficult journey, the bones arrived in Calgary, where they were packed and sent to Survey Headquarters in Ottawa; from here they were sent to Edward D. Cope, the eminent American paleontologist in Philadelphia for description.

Three items from the J.B. Tyrrell Collection are displayed:

41. Map by Tyrrell showing the location of the dinosaur find.

42. A list of shells collected by Tyrrell in the summer of 1883 when he accompanied the geologist G.M. Dawson of the Survey in the same regions.

43. Slides of specimens collected by Tyrrell on one of his voyages.

44. Tyrrell, James Williams, 1863-1945. Across the Sub-arctics of Canada; a Journey of 3200 Miles by Canoe and Snowshoe Through the Barren Lands. Including a List of Plants Collected on the Expedition... Toronto, W. Briggs, 1897.

While still in the employ of the Geological Survey of Canada, Joseph Burr Tyrrell was directed in 1893 to explore the Barren Lands, that "great mysterious region of terra incognita ... more than two hundred thousand square miles in extent, lying north of the 59th parallel of latitude, between Great Slave Lake and Hudson Bay." The expedition did much to advance knowledge of Canada's north and established Tyrrell's reputation as a great Canadian explorer.

James Tyrrell, brother of Joseph, took part in the expedition and wrote the narrative displayed. As in the case of earlier northern expeditions, death by famine or exposure was a recurrent threat. The author nevertheless managed to make a collection of Barren Lands flora, a list of which is appended to his narrative.

45. Albert I, Prince of Monaco, 1848-1922. Résultats des Campagnes Scientifiques Accomplies sur son Yacht ... [Monaco] Impr. de Monaco, 1895-1905.

Albert I, considered to be one of the founders of the science of oceanography, made annual trips of maritime exploration for nearly forty years. He founded the Musée Oceanographique de Monaco in 1911 and the Institut Oceanographique at Paris in 1910. The plate shows specimens of marine fauna collected by

the Prince in the North Atlantic between 1886 and 1902, described and drawn by Louis Roule, Professor at the Université de Toulouse.

Ian Crellin

January, 1979

The cover border is reproduced from item 40; the figures on the cover and this page, from item 36.